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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/552,507

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Akihisa Inoue

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03/09/2009

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EXAMINER

ZHENG, LOIS L

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

03/09/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/552,507	Applicant(s) INOUE ET AL.	
	Examiner LOIS ZHENG	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 26 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. No claims are made in view of applicant's response filed 26 November 2008. Therefore, claims 1-4 are currently under examination.

Status of Previous Rejections

2. The rejection of claims 1-4 under 35 U.S.C. 102(b) as being anticipated by JP 2002-105609(JP'609) is withdrawn in view of applicant's persuasive arguments and Declaration under 37 C.F.R. § 1.132 filed 26 November 2008.

Specification

3. The amendment to specification filed 26 November 2008 is accepted and recorded.

Information Disclosure Statement

4. Following non-patent literature was filed 26 November 2009, but is not a proper information disclosure statement.

"Hydrogen Absorption of Nanoscale Pd Particles Embedded in ZrO₂ Matrix Prepared from Zr-Pd Amorphous Alloys", Yamaura et al., Journal of Materials Research, Vol. 17, No. 6, pages 1329-1334, June 2002.

37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, this non-patent literature is cited by the examiner on form PTO-892 as it has been considered.

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Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-2 are rejected under 35 U.S.C. 102(b) as being anticipated by “Hydrogen Absorption of Nanoscale Pd Particles Embedded in ZrO₂ Matrix Prepared from Zr-Pd Amorphous Alloys”, Yamaura et al., Journal of Materials Research, Vol. 17, No. 6, pages 1329-1334, June 2002(Yamaura).

Yamaura teaches a hydrogen storage Zr-Pd amorphous alloy material wherein hydrogen storage alloy is Zr₆₅Pd₃₀Ni₅(page 1330, left column, second paragraph; page 1332, left column, bottom paragraph). The hydrogen storage alloy material of Yamaura is formed by heat treating in air(page 1330, left column, third paragraph). Yamaura further teaches that the hydrogen storage alloy material comprises nanoscale Pd particles dispersed in ZrO₂ matrix(page 1330, right column, first paragraph).

Regarding claim 1, the Zr₆₅Pd₃₀Ni₅ amorphous hydrogen storage alloy as taught by Yamaura anticipates the claimed hydrogen storage alloy material.

Regarding claim 2, since Yamaura teaches a Zr-Pd-Ni alloy that has the same alloy composition and is produced by the same heat treatment step and forms the same amorphous alloy with dispersed ultrafine metal and ZrO₂ particles as claimed, one of ordinary skill in the art would have expected the amorphous hydrogen storage alloy material of Yamaura to inherently have the same hydrogen storage amount of 2.5 wt%

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or more in a weight ratio relative to pd contained in the hydrogen storage alloy material as claimed.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura.

The teachings of Yamaura are discussed in paragraph 6 above.

Regarding claim 3, one of ordinary skill in the art would have found it obvious to have used the hydrogen storage alloy of Yamaura in any suitable applications wherein a hydrogen storage alloy is required, including the claimed hydrogen storage/transporting container.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaura, and further in view of Baiker et al. US 4,916,109(Baiker).

The teachings of Yamaura are discussed in paragraph 6 above. Yamaura further teaches that a master alloy ribbon is formed by a melting process and the ribbon specimen is heat treated in air at 553°K(i.e. 280°C) to form the final product.(page 1330, left column, second and third paragraph).

However, Yamaura does not explicitly teach the claimed rapid solidification of the melted master alloy at the claimed cooling rate to form a amorphous alloy.

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Baiker teaches an amorphous palladium zirconium oxide material, such as $\text{Pd}_{33}(\text{ZrO}_2)_{67}$, used a catalyst (abstract, col. 1 lines 55-57). Baiker further teaches that forming an amorphous alloy by melting and rapid cooling at a cooling rate of 10^6 - 10^9°C/s is well known in the art(col. 1 lines 58-64).

Therefore, it would have been obvious to one of ordinary skill in the art to have incorporated the rapid cooling as taught by Baiker into the hydrogen storage alloy forming process of Yamaura in order to form an amorphous hydrogen storage alloy material.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

LLZ